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Investigating the Relationship between Moral Distress and Coping in Pre-Hospital Emergency Medical Services Technicians of East Azerbaijan Province in 2021

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Abstract

Background: Technicians working in the emergency medical services (EMS) ward face more cases of moral distress due to the nature of their work. The consequences of moral distress include decreased self-confidence, job burnout, job dissatisfaction, and depression. One of the solutions to deal effectively with stressors is coping. The ability to adjust can be affected by much exposure to stressors.
Objectives: This study aimed to investigate the relationship between moral distress and coping in technicians working in the EMS ward.
Methods: This cross-sectional study was conducted in 2021 on 494 technicians working in EMS bases in East Azerbaijan province. Sampling was performed by stratified random method. Data collection tools were the demographic characteristics questionnaire, the Corely moral distress scale (MDS), and the Littman's Cope inventory. In addition, data were analyzed using descriptive statistics and Pearson's correlation coefficient.
***Results*:** The results of the study showed that the mean (SD) score of the frequency of moral distress was 47.21 (17.24), the severity of moral distress was 47.44 (19.63), and coping was 38.81 (4.82). The severity of moral distress (r= -0.14 and p=0.004) and the frequency of moral distress (r=-0.19 and p=0.001) were observed to have inverse and significant statistical relationships to coping in EMS technicians.
Conclusion: Considering that there is a significant inverse relationship between moral distress and coping of EMS technicians, it seems that by providing solutions to control the moral distress of these staff, it is possible to improve their adjustment and, consequently, their job capabilities.

Keywords: moral distress, coping, emergency medical services technician

Introduction

Uncertainty or fear of action when occurring distressing events causes moral distress. In other words, moral distress is when a person thinks it is right to do an action while organizational barriers prevent it from being done [1]. Moral distress is a natural complication that affects even a professional person performing healthcare [2]. The special nature of the care provided in the intensive care unit (ICU) and emergency ward often faces the staff working in these wards with moral distress and challenges in decision-making. One of these sensitive wards is emergency medical services (EMS) or pre-hospital emergency. In the EMS ward, the nature of events is such that quick and life-saving treatment not

only requires clinical skills but also challenges the personality and characteristics of the medical staff and leads to moral distress [3-4].

Technicians working in emergency bases often face acute and challenging conditions. In their daily missions, they face individuals' bitter experiences, such as the scene of their suffering and death. Daily exposure to these difficult and sad conditions will lead them to psychological imbalance and moral distress [3,5]. Continuous moral distress can lead to depression, anxiety, discouragement from professional life, decreased job satisfaction, job burnout, and finally, leaving the profession and worsening the shortage of human resources in the health system [6-9].

Research shows that when moral distress occurs, the quality of care provided decreases, technicians as healthcare providers avoid facing patients, and hence the basic needs of patients are not met [10-11]. Ebrahimi et al.'s study showed that Iranian nurses also suffered from psychological pressure caused by moral distress [12].

Many cases can cause moral distress to EMS technicians. In a study by Pauli et al. (2009), the external situations that caused the greatest degree of distress and lack of adjustment were the issues related to the inequality of human resources and facilities in the face of accidents and injured individuals. All the obstacles create vulnerability in EMS technicians, aggravating their annoying experience and sorrow and causing their lack of adjustment. Moral distress may obviously occur in cases such as lack of close contact with the patient, loss of capacity to care for the patient, poor communication, and lack of cooperation with colleagues [13].

One of the solutions to deal effectively with stressors is the coping [14]. The coping refers to an individual's response to fear or stress. Indeed, the coping is a way to manage the wishes that occur in the individual's external or internal environment. coping can also be defined as the sum of cognitive, emotional, and behavioral efforts to deal with specific stresses in different situations [15-16]. When facing undesirable and stressful events, only individuals with high coping can have control over their thoughts, show more stability, and not have negative thoughts about themselves and their individual abilities [10]. In contrast, individuals with low coping may believe that the current situation is unsolvable, leading to fueling distress, depression, and a desperate look for further resolution [8]. It seems that among healthcare providers, more coping is seen in individuals who have higher experience and limited and fixed working hours during the day, but in rookie and young staff who have long shifts, there is less adjustment and more distress due to fatigue, more preoccupation, and clumsy behaviors [17].

The ability to coping can be affected and destroyed by exposure to many stressors, and in a vicious cycle, it can lead to other negative consequences. Accordingly, and given the complications caused by moral distress in the performance of EMS technicians and the fact that the level of exposure of ICU nurses and EMS technicians to moral distress has been reported to be high [18-20], and also to the best of our knowledge, no study was found to investigate moral distress in EMS technicians, this study was conducted to investigate the relationship between moral distress and coping in EMS technicians working in emergency medical service bases affiliated to East Azerbaijan University of Medical Sciences to provide basic information on the level of coping of technicians in these wards, identify one of the possible factors related to coping in them, and reveal the necessity of dealing with solutions to reduce and control moral distress and promote coping in EMS technicians.

Methods

This cross-sectional study was conducted to investigate the relationship between moral distress and coping in technicians working in EMS bases in East Azerbaijan province from April to September 2021 from Tabriz University of Medical Sciences, all EMS technicians of East Azerbaijan province working in urban and road bases, which included 790 people, were considered a statistical population. Pre-hospital EMS technicians responded to emergency missions in two-person shifts in urban and road bases; all technicians were male.

The sample size estimation formula with the ratio of one trait in the population with a confidence coefficient of 95% and an error level of 5% was used based on a previous study [12] to determine the sample size, and the number 480 was obtained, which taking into account a 5% attrition 504 questionnaires were distributed; finally, 494

questionnaires were included in the study. Individuals were included in the study by stratified random sampling method. East Azerbaijan province has 21 cities; each city was considered a category. After determining the number of staff in each city, individuals were selected by the convenient method, and by referring to the emergency bases, the individuals present in the shift entered the study. The participants' characteristics included having an associate's, bachelor's, or master's degree in one of the fields of EMS, nursing, or anesthesia, and having at least one year of work experience in EMS bases. After coordinating with the relevant officials, the researcher went to the bases at different times. After providing the necessary explanations to the participants about the research plan, how to complete the questionnaires, confidentiality of the received information, and gaining trust and cooperation, written consent was obtained from the staff. Then, the questionnaire containing demographic information, the moral distress questionnaire, and the cope inventory were provided to the samples and collected after a few days.

The demographic characteristic questionnaire included age, marital status, type of base (urban or road), level of education, work experience, and type of work shifts (12-hour or 24-hour).

Data collection tools were a demographic information questionnaire, the Corely moral distress scale (MDS), and the Littman's cope inventory.

The Corely MDS measures nurses' frequency and severity of moral distress in the form of 24 questions on a five-point Likert scale. The frequency of moral distress in this questionnaire means the number of times of exposure to stressors, the scale of which includes "I have never exposed" (score 0) to "I have exposed a lot" (score 4). The severity of moral distress means the degree of distress felt by a person when facing stressful situations and has a scale of "It does not make me distressed" (score 0) to "It makes me distressed a lot" (score 4). The range of scores for each of the dimensions of frequency and severity of distress in this questionnaire is 0 to 96, and the higher a person's score, the higher the frequency or severity of moral tension in that person. The classification of severity and frequency of moral distress in this questionnaire is as follows: A score between 0 and 31 indicates low severity or frequency of moral distress, a score between 32 and 64 indicates moderate severity or frequency of moral distress, and a score between 65 and 96 means high severity or frequency of moral distress [21,12]. This questionnaire has been used in many domestic and foreign studies. Considering the special conditions of the service delivery system in Iran and the opinions of professors and experts, changes were made to this questionnaire in Iran in 2012 by Julayi et al., it was adapted to the existing problems in Iranian hospitals, and its validity and reliability were checked and confirmed through content validity and internal consistency (α=0.86)., respectively [22]. Littman et al.'s Cope inventory consists of 10 questions based on a five-point Likert scale ranging from "completely disagree" to "completely agree." Questions 2, 3, 4, 6, 8, and 10, which have a negative meaning, are scored in reverse. The total score obtainable in this questionnaire was 0 to 50. The higher a person's score, the greater his sense of adjustment. The way of classifying the level of adjustment in this questionnaire is as follows: A score between 0 and 16 indicates a low coping level, a score between 17 and 33 means a moderate coping level, and a score between 34 and 50 indicates high coping level [23]. In the present study, the Littman cope inventory was first translated from the original language to Persian by two experienced translators. The two versions of the translation were then combined and turned into a single translation by the research team, and the final Persian version was translated into English by two translators familiar with the English language other than the original translators; afterward, the two English versions were edited and summarized by a language expert. Ultimately, this questionnaire was compared with the original questionnaire and confirmed. The Corley MDS and the Littman cope inventory were then given to 15 EMS professors of Tabriz to determine the content and face validity, and modifications were made after giving their opinions. The reliability of the Corley MDS and Littman cope inventory was investigated by the internal consistency method and Cronbach's alpha calculation. In order to calculate this coefficient before starting the study, the questionnaires were given to 30 EMS technicians in the city of Tabriz, and the

correlation of the answers was checked by calculating Cronbach's alpha coefficient, and the alpha values were obtained as 0.85 and 0.84, respectively.

Out of the total questionnaires distributed, 494 people answered the questionnaires thoroughly. The data were analyzed using SPSS version 16 software.

The relationships between the main research variables, including moral distress and level of coping, were analyzed based on the mean and using Pearson's correlation coefficient. The value of $p<0.05$ was considered the significance level.

Results

The mean (SD) age of EMS technicians participating in this study was 32.7 (6.5) years, the mean (SD) work experience of the technicians was 7.6 (5.5) years, 35% worked in urban bases, and 65% worked in road bases (Table 1).

Table 1: Personal and job characteristics of emergency medical services technicians

Personal and Job Characteristics of Technicians		Number	Percentage
Age	20-30 years old	203	41.1
	31-40 years old	224	45.4
	41-50 years old	59	11.9
	>50	8	1.6
Marital status	Single	187	37.8
	Married	307	62.2
Base	Urban bases	302	61.1
	Road bases	192	38.9
Level of education	Associate	11	2.2
	graduate	435	88.1
	postgraduate	48	9.7
Work experience	<5	208	42.1
	5-10 years	155	31.3
	11-15 years	83	16.8
	16-20 years	37	7.6
	>20	11	2.2
Work shift	12 hours/day	56	11.4
	12 hours/night	13	2.7
	24 hours	425	85.9

The results showed that the mean (SD) scores of the frequency 47.21 (17.24) and severity 47.44 (19.63) of moral distress were out of the total score of 96 and the mean (SD) score of coping 38.81 (4.82) was out of the total score of 50, which all three variables in most of the participants were at an average level (Table 2).

Table 2: Frequency Distribution of Moral Distress and Coping of Emergency Medical Services Technicians in Terms of Job Variables

	Variable	Categories	High (Score 65-96)	Moderate (Score 32-64)	Low (Score 0-31)
Severity of moral distress	Base	Urban base	29 (9.7)	148 (58.3)	66 (32)
		Road base	64 (22.4)	119 (48.7)	68 (28.9)
	Age	20-30	98 (48.28)	86 (42.36)	19 (9.36)
		31-40	122 (54.7)	87 (39)	14 (6.3)
		41-50	29 (48.3)	23 (38.3)	8 (13.4)
		>50	5 (62.5)	3 (37.5)	-
	Education	Associate	2 (18.18)	6 (54.54)	3 (27.28)
		graduate	251 (57.7)	93 (21.38)	91 (20.92)
		postgraduate	23 (47.91)	14 (29.16)	11 (22.93)
	Work experience	< 5	87 (41.83)	67 (32.21)	54 (25.96)
		5-10	117 (75.48)	18 (11.61)	20 (12.91)
		11-15	43 (51.81)	28 (33.73)	12 (14.46)
		16-20	17 (45.95)	14 (37.84)	6 (16.21)
		> 20	4 (36.36)	7 (63.64)	-
	Variable	**Categories**	**High (Score 65-96)**	**Moderate (Score 32-64)**	**Low (Score 0-31)**
Frequency of moral distress	Base	Urban base	18 (5.6)	151 (61.1)	74 (33.3)
		Road base	53 (21.1)	158 (60.5)	40 (18.4)
	Age	20-30	126 (62.07)	41 (20.20)	36 (17.73)
		31-40	118 (80.07)	74 (33.18)	31 (13.25)
		41-50	39 (66.10)	18 (30.51)	2 (3.39)
		>50	5 (62.5)	3 (37.5)	-
	Education	Associate	6 (54.54)	4 (36.36)	1 (9.1)
		graduate	321 (73.96)	87 (20.05)	26 (5.99)
		postgraduate	24 (50)	15 (31.25)	9 (18.75)
	Work experience	< 5	142 (68.27)	42 (20.19)	24 (11.54)
		5-10	98 (63.23)	42 (27.1)	15 (9.67)
		11-15	58 (70.73)	16 (19.51)	8 (9.67)
		16-20	21 (56.76)	14 (37.84)	2 (5.4)
		> 20	9 (81.81)	2 (18.19)	-
	Variable	**Categories**	**High (Score 34-50)**	**Moderate (Score 17-33)**	**Low (Score 0-16)**
Coping	Base	Urban base	71 (30.6)	176 (69.4)	-
		Road base	110 (42.1)	137 (57.9)	-
	Age	20-30	181 (89.16)	22 (10.84)	-
		31-40	126 (56.5)	97 (43.5)	-
		41-50	38 (64.41)	21 (35.59)	-
		>50	6 (75)	2 (25)	-
	Education	Associate	10 (90.9)	1 (9.1)	-
		Undergraduate	351 (80.87)	83 (19.13)	-
		Graduate	29 (61.45)	19 (38.55)	-
	Work experience	< 5	157 (75.48)	51 (24.52)	-
		5-10	97 (62.58)	58 (37.42)	-
		11-15	55 (67.07)	27 (32.93)	-
		16-20	24 (64.86)	13 (35.14)	-
		> 20	8 (72.72)	3 (27.28)	-

Also, the findings showed weakly and reversely significant relationships between the severity of moral distress and coping (r=-0.14 and p=0.004) and between the frequency of moral distress and coping (r=-0.19 and p=0.001) in such a way that with an increase in the severity and frequency of moral distress, the adjustment of EMS technicians decreases (Table 3).

Table 3: The Correlation of Moral Distress with Coping in Emergency Medical Services Technicians

Moral Distress \ Adjustment	Pearson's Correlation Coefficient	P-Value*
Frequency of moral distress	-0.19	0.001
Severity of moral distress	-0.14	0.004

***Significance level p<0.05; Confidence interval (CI) 95%**

Discussion

This study was conducted to investigate the relationship between moral distress and coping in EMS technicians working in urban and road bases of East Azerbaijan province.

The results showed that the mean scores of the severity and frequency of moral distress in technicians are at a moderate level. In most of the studies carried out inside and outside the country, the moral distress of the staff working in ICU wards has been reported as moderate [19, 24,25). In 2021, Babamohammadi et al. reported the level of moral distress of emergency ward nurses in Semnan hospitals as moderate [19]. Molazem et al. reported the level of moral distress of nurses working in the cardiac care unit (CCU) wards of Shiraz hospitals in 2013 as moderate [26]. In the studies conducted abroad, Pap than et al. reported the moral distress of ICU nurses as moderate [27]. The results of Bordignon's study in Brazil showed that the mean score of moral distress in nursing students working in Brazilian hospitals was moderate to high [28].

Based on the results of the present study, the level of coping in EMS technicians was at a moderate level. Contrary to the results of the present study, Hosseini et al. reported the coping score of nurses in the ICU, emergency, and surgery wards of Tehran Oil Company Hospital between 19 and 40 (4.66) as 29.82. The results of their study showed that 83.7% of the nurses participating in the research had an adjustment score higher than moderate (25 points), and only 16.3% had an adjustment score lower than moderate [29], which is inconsistent with the results of the present study. The reason for the inconsistency between the results of Hosseini et al.'s study and the present study could be the difference in the facilities available in the EMS bases of East Azerbaijan province and Tehran Oil Company Hospital, as well as the difference in the tools used because in the mentioned study, the general coping questionnaire was used, but the Littman cope questionnaire used in the present study is related to an individual's adjustment regarding his job. In addition, in the present study, the pre-hospital emergency ward has been studied, which may have differences from the hospital wards under study in the mentioned research.

In this study, a weak and significant inverse relationship was observed between moral distress and coping in EMS technicians in such a way that with the increase in the severity and frequency of moral distress, the level of coping in EMS technicians decreases. The results of Leggett et al.'s study also showed a significant inverse relationship between moral distress and coping. The mentioned study conducted in the United States found that training coping skills for 60 minutes a day for one month significantly reduced the moral distress of nurses working in burn ICU [30]. Of course, the relationship between the level of coping and other job variables has been investigated in different studies; for example, the results of Paiman et al.'s study in Mashhad showed a strong significant relationship between coping and job distress of nurses so that with increasing coping, the management of job distress improved significantly [31]. The results of Waazifar et al.'s study in Isfahan also showed a significant inverse relationship between nurses' level of coping and job stress [32]. Based on these findings and the results of the present study, it can be said that one of the negative consequences of variables such as job distress, job stress, and moral distress can be a decrease in the level of coping because continuous exposure to these variables can lead to reduced work affiliation, reduced self-confidence, reduced degree of stability and resistance of individuals in front of work problems and difficulties, and a feeling of inability and inefficiency in performing job duties and commitments [8-9]. On the other hand, individuals with low coping may believe that the

current situation is unsolvable, and in this way, they show less stability in the face of problems, leading to increased severity of distress in them [8]. On the other hand, Zavotsky et al.'s study on emergency ward nurses showed a significant direct relationship between moral distress and some coping mechanisms in nurses, which the conflicting results of this study with the current study are probably due to the difference between the two studied communities in terms of gender, the tools used, as well as the working environment [1] because the working environment of the hospital emergency ward is different from the pre-hospital emergency ward due to the available facilities and the presence of specialized teams.

The present study is valuable because in the results of our search, no study was found to investigate the relationship between moral distress and coping in EMS technicians, and in turn, the current research provides useful primary information to officials and researchers.

Of course, one of the limitations of this study was that it was limited to the EMS in East Azerbaijan province and also the use of the self-reporting method in data collection, which the cause of the observed weak statistical relationship seems to be the same limitations. Therefore, it is suggested to repeat this study on a broader scale. In order to check the level of coping, observational methods and tools should be used to measure the real coping level of experts objectively.

Based on the obtained results, it is suggested to take actions to solve any problems and issues that lead to moral distress, minimize the moral distress of EMS technicians and improve the work process, with emphasis on strengthening the coping beliefs of these technicians.

Conclusion

The results of this study showed that the level of severity and the frequency of moral distress and coping are moderate, and there is a weak and inverse significant relationship between moral distress and coping in EMS technicians in such a way that with the increase of moral distress, coping decreases by the technicians. Therefore, considering that coping beliefs can affect individuals' performance and given the sensitivity and complexity of the work of EMS technicians as well as the high exposure to moral distress, it is suggested that the healthcare service system use solutions to reduce and control moral distress in EMS technicians in order to prevent unwanted negative consequences such as lack of coping in them.

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Conflict of interest

The author acknowledges that there is no conflict of interest in this article.

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